

Elo Entuitive Touchmonitor User Guide

For 15" and 17" CRT Touchmonitors

Version 1.0

Revision A

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Elo TouchSystems, Inc.

1-800-ELOTOUCH

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Chapter 1

Introduction

Congratulations on your purchase of an Elo TouchSystems Entuitive touchmonitor. Your new high-resolution touchmonitor combines the reliable performance of Elo's touch technology with the latest advances in CRT display design. This combination of features creates a natural flow of information between a user and the touchmonitor.

About This Manual

This manual includes assembly instructions, touch technology data, on-screen adjustment instructions, and technical specifications for Elo TouchSystems' 15-inch and 17-inch CRT touchmonitors.

CRT Touchmonitor Features

- ☐ 13.8-inch viewable image microprocessor-based display for 15-inch monitor and 16-inch viewable image microprocessor-based display for 17-inch monitor.
- ☐ Plug and Play functionality automatically adjusts the monitor to its optimum performance.
- ☐ Power-saving feature* automatically powers down the monitor after a user-defined period of inactivity.
- ☐ All parameters in each of the display modes reside in the microprocessor-based control system. Settings are built in for existing VGA standards; 800 x 600, 1024 x 768, and 1280 x 1024 modes.

*Complies with the Display Power Management System (DPMS) of the Video Electronics Standards Association (VESA).



- ☐ Easy on-screen adjustment of Horizontal Size/Position, Vertical Size/Position, Pincushion, Trapezoid, Tilt, Color Adjustment, Language, Power Saver, Display Mode, and Factory Reset controls.
- ☐ Patented touch technology of Elo TouchSystems.
Your monitor will have *one* of these two options:
 - ☐ RS-232 touch interface.
 - ☐ Universal Serial Bus (USB) touch interface.

Contacting Elo

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Chapter 2

Installation

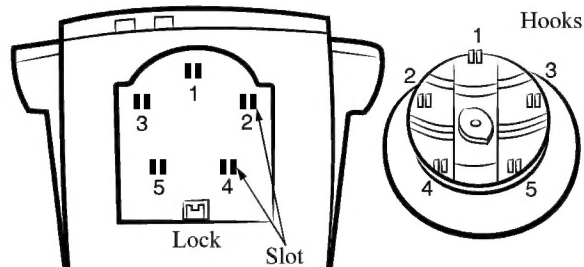
Unpacking

Check that the following seven items are present and in good condition:

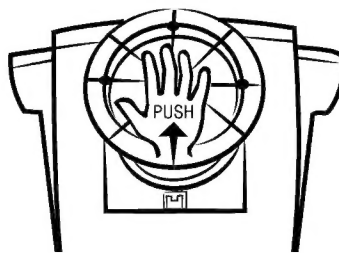
- ☐ Elo Entuitive Touchmonitor
- ☐ Base
- ☐ RS-232 serial touchscreen cable or USB cable
- ☐ AC power cord
- ☐ User manual
- ☐ Quickstart guide
- ☐ TouchTools CD-ROM

Getting Started

Installing the Base

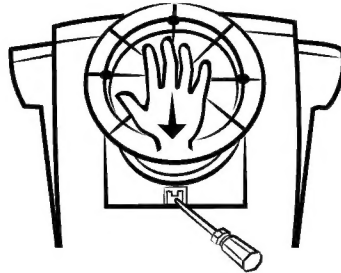


Put the labeled hooks onto the corresponding slots on the bottom of the monitor.



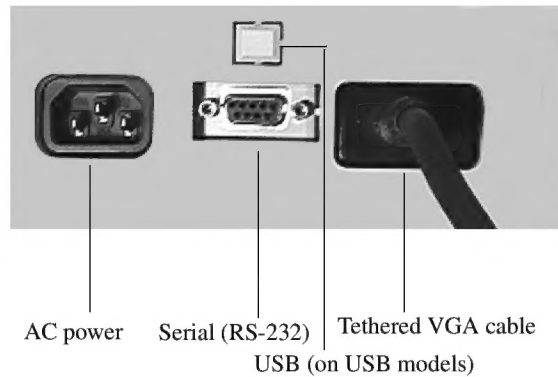
Push on the base in the direction of the arrow so that the hooks engage firmly in the slots, as shown in the above illustration.

Removing the Base



With a screwdriver, press down the lock then remove the base by lifting it up in the direction of the arrow in the above illustration.

Connecting Your 17" Monitor



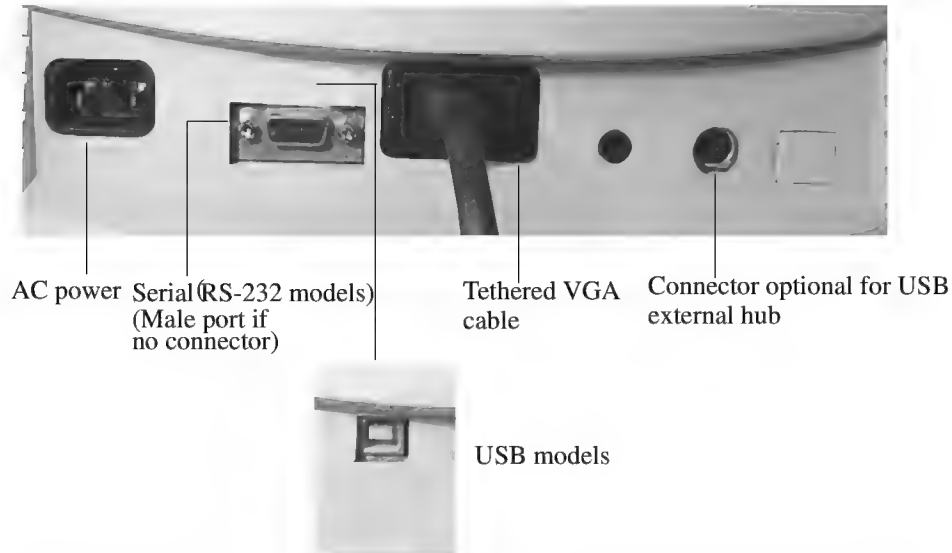
IMPORTANT: Before connecting the cables to your touchmonitor and PC, be sure that the computer and touchmonitor are turned off.

1. Connect the VGA cable to the video connector on your PC. Secure the cable to your PC by turning the screws on the connector.



2. Connect the power cord to the AC connector on your touchmonitor. To protect your equipment against risk of damage from electrical surges in the power line, plug the touchmonitor's power cord into a surge protector, and then connect the surge protector to a grounded (three-pronged) AC electrical outlet.
3. Connect the touchscreen cable. Determine if you have RS-232 or USB. Connect one end to the appropriate port on the back of your PC. Connect the other end of the cable to the touchscreen connector on your touchmonitor. The touchscreen cable connectors should fit snugly into the connectors on your touchmonitor and PC.
4. Power on your PC then power on your monitor. After a brief pause the picture should appear.
5. If necessary, adjust the front panel controls according to your personal preference (see Chapter 3).
6. Insert the Elo TouchTools CD-ROM in your computer's CD-ROM drive to install the appropriate touchscreen driver software.

Connecting Your 15" Monitor



IMPORTANT: Before connecting the cables to your touchmonitor and PC, be sure that the computer and touchmonitor are turned off.

1. Connect the VGA cable to the video connector on your PC. Secure the cable to your PC by turning the screws on the connector.
2. Connect the power cord to the AC connector on your touchmonitor. To protect your equipment against risk of damage from electrical surges in the power line, plug the touchmonitor's power cord into a surge protector, and then connect the power strip to a grounded (three-pronged) AC electrical outlet.
3. Connect the touchscreen cable. Determine if you have RS-232 or USB. Connect one end to the appropriate port on the back of your PC. Connect the other end of the cable to the touchscreen connector on your touchmonitor. The touchscreen cable connectors should fit snugly into the connectors on your touchmonitor and PC.
4. The USB external hub is a central location for USB connections. If you have this option, plug the hub into the external hub port.



5. Power on your PC then power on your monitor. After a brief pause the picture should appear.
6. If necessary, adjust the front panel controls according to your personal preference (see Chapter 3).
7. Insert the Elo TouchTools CD-ROM in your computer's CD-ROM drive to install the appropriate driver software.

Power Consumption

The touchmonitor comes with a power-saving feature that controls its power consumption. This feature complies with both the EPA's Energy Star requirements and European NUTEK/TCO's power management guidelines. It also conforms to the Display Power Management System (DPMS) power-down signaling method approved by the Video Electronics Standard Association (VESA).

15" Monitor

Mode	H-sync	V-sync	Power consumption (W)
Normal	Active	Active	110 max.
Suspend/Standby	Active	Inactive	15 max.
	Inactive	Active	15 max.
Off	Inactive	Inactive	8 max.

17" Monitor

Mode	H-sync	V-sync	Power consumption (W)
Normal	Active	Active	90 max.
Suspend/Standby	Active	Inactive	15 max.
	Inactive	Active	15 max.
Off	Inactive	Inactive	8 max.



Preset Video Modes

Elo Entuitive touchmonitors have 12 preset video modes and 4 user-defined video modes. Following are the 12 modes preset as factory defaults:

Preset mode	F _H	F _V	Standard
640 x 480	31.5 kHz	60 Hz	VESA
720 x 400	31.5 kHz	70 Hz	VGA
640 x 480	37.5 kHz	75 Hz	VESA
800 x 600	37.9 kHz	60 Hz	VESA
640 x 480	43.3 kHz	85 Hz	VESA
800 x 600	46.9 kHz	75 Hz	VESA
1024 x 768	48.4 kHz	60 Hz	VESA
832 x 624	49.7 kHz	75 Hz	MAC*
800 x 600	53.7 kHz	85 Hz	VESA
1024 x 768	60.0 kHz	75 Hz	VESA
1280 x 1024	63.9 kHz	60 Hz	VESA
1024 x 768	68.7 kHz	85 Hz	VESA

* A video cable adapter is needed for Macintosh resolutions.



Chapter 2 : Installation

Chapter 3

Operation

About Touchmonitor Adjustments

By design, your Elo Entuitive touchmonitor should not require any adjustments. The factory settings will give you optimum video results with most standard PC video display adapters.

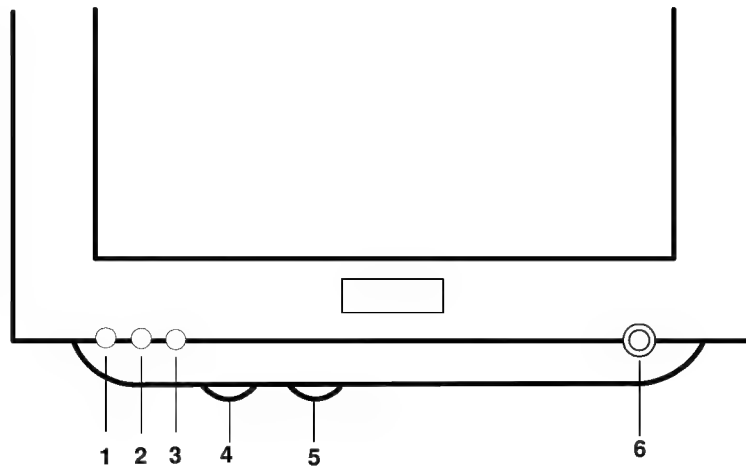
However, after connecting your touchmonitor you can further optimize the settings to meet your requirements by following the directions in this chapter.

All adjustments you make to the controls are automatically memorized, so you do not need to reset your choices every time you unplug your touchmonitor or power it off and on. If there is a power failure your touchmonitor settings will not default to the factory specifications.



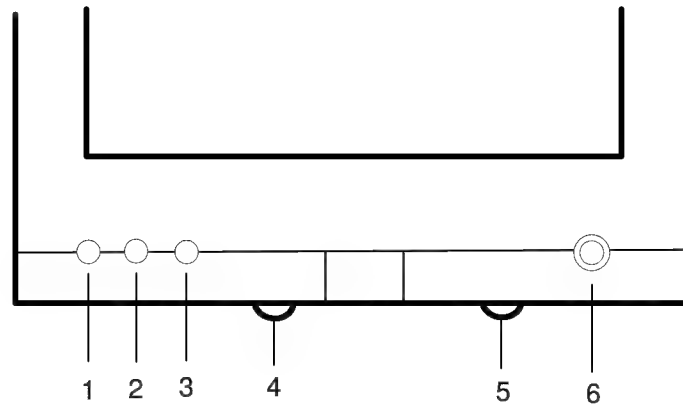
IMPORTANT: Do not remove the CRT touchmonitor cover. The touchmonitor uses high voltages, and the metal edges inside the touchmonitor cover are sharp. Removing the touchmonitor cover voids the warranty.

15" Monitor Controls



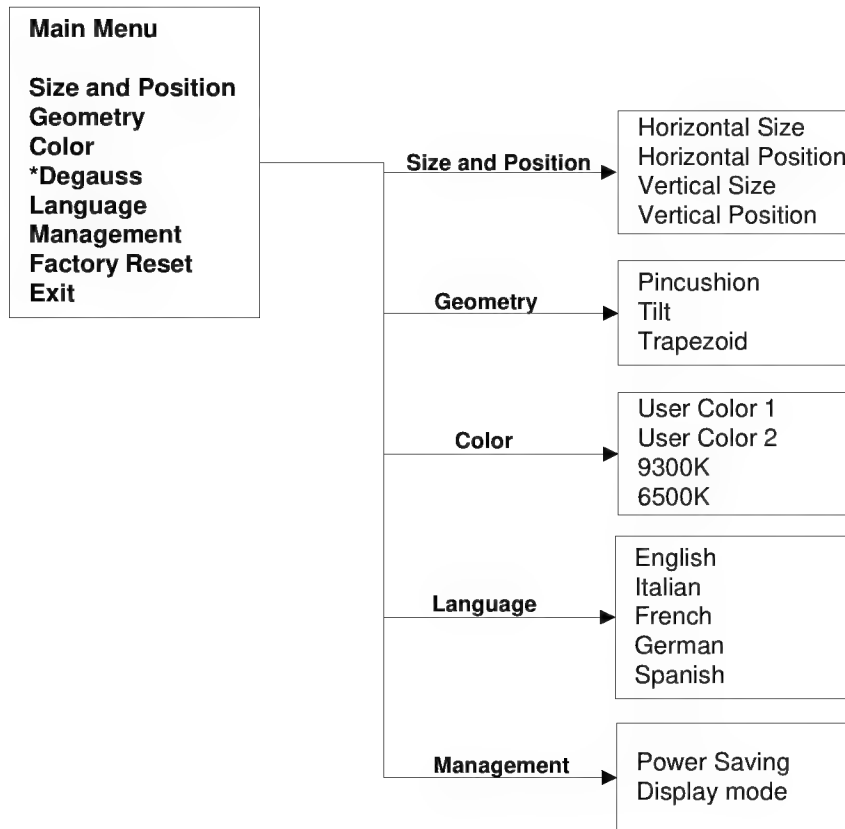
- | | | | |
|---|------------------------|---|---|
| 1 | Decrease button | — | Scrolls down or decreases the value of a parameter. |
| 2 | Function button | ◇ | Displays Elo touchmonitor on-screen display. |
| 3 | Increase button | + | Scrolls up or increases the value of a parameter. |
| 4 | Contrast | ● | Adjusts the image brightness in relation to the background. |
| 5 | Brightness | ☀ | Adjusts the overall image and background brightness level. |
| 6 | POWER | ⓘ | Turns the touchmonitor ON/ OFF. The green light signals ON; no light OFF. |

17" Monitor Controls



- | | | |
|--------------------------|---|---|
| 1 Decrease button | – | Scrolls down or decreases the value of a parameter. |
| 2 Function button | ◁ | Displays Elo touchmonitor on-screen display. |
| 3 Increase button | + | Scrolls up or increases the value of a parameter. |
| 4 Contrast | ● | Adjusts the image brightness in relation to the background. |
| 5 Brightness | ☀ | Adjusts the overall image and background brightness level. |
| 6 POWER | ⓘ | Turns the touchmonitor ON/OFF. The green light signals ON and no light signals OFF. |

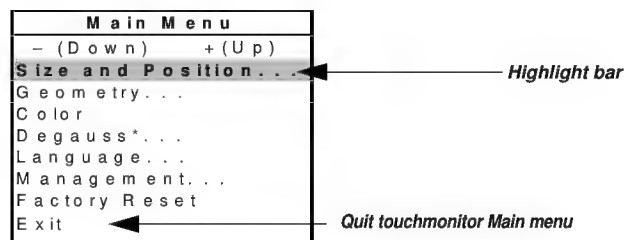
On-Screen Menus: Overview



*Degauss on-screen menu option available on 17-inch monitor only.

Touchmonitor Adjustment Controls

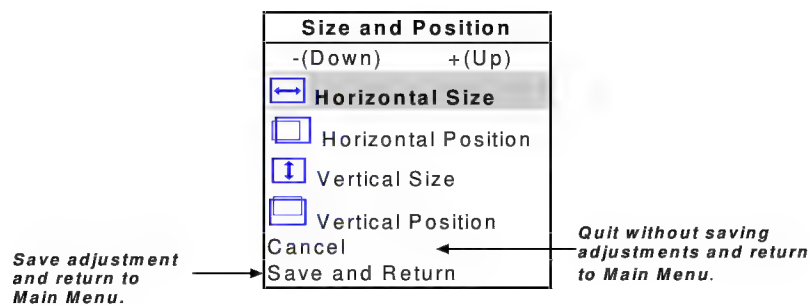
1. Press the **Function** button on the front panel to display the Main Menu.
2. Press the <+> or <-> button to scroll up or down the Main Menu, then press the **Function** button to enter the secondary menu.



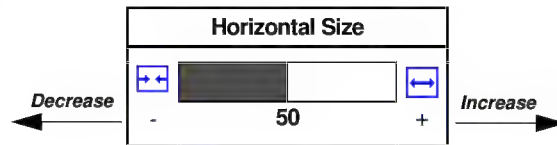
*Both 15 and 17-inch monitors degauss automatically when powered on. Only the 17-inch monitor has the Degauss menu option.

Size and Position Menu

1. Use the <+> or <-> button to scroll up or down.
2. Press the **Function** button to select a parameter in the Size and Position menu.











Adjusting Size and Position



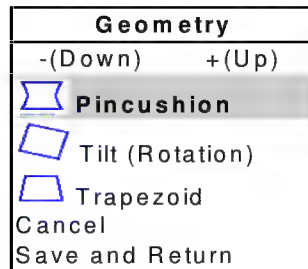
1. Use the <+> or <-> button to adjust a parameter.
2. Press the **Function** button to save the adjustment and return to the Size and Position menu.
3. If you have made any parameter adjustment, the Save and Return option will be highlighted when you return to the Size and Position menu. Press the **Function** button to confirm the changes.







If no adjustment has been made, the Cancel option will be highlighted.

Functions	-	+	Description
Horizontal Size			Increases or decreases the display size horizontally.
Horizontal Position			Moves the screen position left or right.
Vertical Size			Increases or decreases the display size vertically.
Vertical Position			Moves the display position up or down.

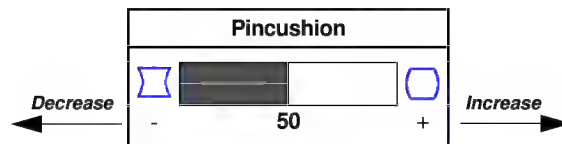
Geometry Menu

1. Use the <+> or <-> button to scroll up or down.
2. Press the **Function** button to select a parameter in the Geometry menu.



Functions	-	+	Description
Pincushion:			Curves left and right sides of the display inward or outward.
Tilt:			Rotates display clockwise or counter clockwise.
Trapezoid:			Minimizes trapezoid distortion of the display.

Adjusting Geometry



1. Use the <+> or <-> button to adjust a parameter.
2. Press the **Function** button to save the adjustment and return to the Geometry menu.

3. If you have made any parameter adjustment, the Save and Return option will be highlighted when you return to the Geometry menu. Press the **Function** button to confirm the changes.

If no adjustment has been made, the Cancel option will be highlighted.

Color Menu

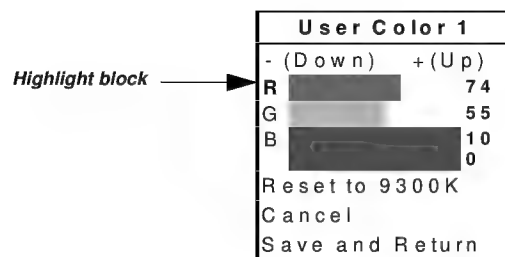
1. Use the <+> or <-> button to scroll up or down.
2. Press the **Function** button to select a parameter in the Color menu.

Color	
- (Down)	+(Up)
User Color 1	
User Color 2	
9300K	
6500K	
Cancel	
Save and Return	

Functions	Description
9300K	Preset color mode 1.
6500K	Preset color mode 2.
User Color 1	Adjusts parameters for the colors Red, Green, and Blue.
User Color 2	Adjusts parameters for the colors Red, Green, and Blue.

Adjusting Color

1. Use the <+> or <-> button to scroll up or down.
2. Press the **Function** button to select one of the preset color modes.



When the **User Color 1** or **User Color 2** menu first appears, the letter R is highlighted.

1. Use the <+> or <-> button to scroll up or down.
2. Press the **Function** button to choose the R,G, or B parameter.
3. With the R,G, or B block highlighted, use the <+> or <-> button to adjust the parameter.
4. If you prefer a preset color temperature you can select Reset to 9300K.
5. Press the **Function** button to complete the parameter adjustment.
6. Once you have completed your adjustments, highlight the Save and Return option to save and return to the Color menu, or select Cancel to quit User Color 1 or User Color 2 without saving adjustments.

Degauss Menu

The degauss function demagnetizes the CRT to ensure color purity. By selecting this function, your CRT touchmonitor is automatically degaussed each time you turn it on.

Press the **Function** button and choose Degauss from the menu.

Note: Both 15 and 17-inch monitors degauss automatically when powered on. Only the 17-inch monitor has the Degauss menu option.

Language Menu

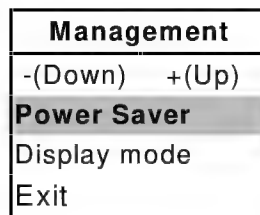
Press the **Function** button to choose English, Italian, French, German, or Spanish. When you select a language, all other menus are displayed in that language.

1. Use the <+> or <-> button to scroll up or down.
2. Press the **Function** button to select a parameter in the Language menu.

Language	
-(Down)	+(Up)
English	
Italian	
French	
German	
Spanish	
Cancel	

Management Menu

1. Use the <+> or <-> button to scroll up or down.
2. Press the **Function** button to enter different functions in the Management menu:



Power Saver

This feature activates or deactivates the Display Power Management System (DPMS).



1. Use the <+> or <-> button to select ON/OFF.
2. Press the **Function** button to return to the Management menu.

Display Mode

This activates or deactivates on-screen display of Preset Mode or User Mode.

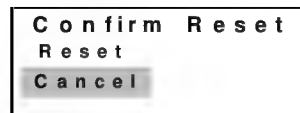


1. Use the <+> or <-> button to select ON/OFF.
2. Press the **Function** button to return to the Management menu.

Factory Reset

Factory Reset is used to reset the on-screen parameters to the factory settings. The default is Cancel.

1. Use the <+> or <-> button to select Reset or Cancel.
2. Press the **Function** button to Reset or Cancel and return to the Main Menu.



Exit

Use Exit to quit the touchmonitor on-screen controls display.



Chapter 4 Troubleshooting

Solutions to Common Problems

Problem	Suggestion (s)
No picture.	Your touchmonitor may not be getting power. Make certain that your power strip is plugged into the wall socket and that the PC and touchmonitor are plugged in and powered on.
	Test the power supply by trying different cables or a different wall outlet, or by plugging another appliance into the outlet.
	Make certain the video cable is properly connected and that it is not damaged. Check for bent pins on the cable connectors.
	Ensure that your computer and video card are properly configured (consult the video card documentation).
Picture appears to be ghosting.	Make certain there is a good connection between the touchmonitor and the computer.
Picture is not centered.	Read about adjusting your touchmonitor picture and make the appropriate adjustments.
Picture appears “washed out”.	Readjust your brightness and contrast settings.
Picture not present or severely distorted.	Verify that your video display adapter settings are formatted for the correct resolution and vertical refresh rates.
Touch doesn’t work.	Check to make sure the touchscreen cable is securely attached at both ends.



Monitor Warning Messages

Warning Message	Suggestion
<i>Input signal out of range</i>	<p>The power LED flashes amber. The input signal of H-sync or V-sync is larger or smaller than its normal mode (monitor is receiving input that it can't display). The monitor will be in protect mode.</p> <p>Verify that your video display adapter settings are formatted for the correct resolution and vertical refresh.</p>
<i>Check video cable</i>	<p>The VGA cable is not properly connected. Check the VGA cable. This OSD message will stay on-screen until the VGA cable is connected to the PC or the power switch is turned off.</p>

Appendix A

Touch Technology

Touchscreens: An Overview

Typically, users communicate with computers by using a mouse, a keyboard, or a combination of the two. Users who are not keyboard-literate or mouse-savvy can become frustrated with how long human-to-computer interactions take.

Computer literacy is learned. This is complicated by the fact that using a keyboard or a mouse is neither intuitive nor natural for most people. Touchscreens cut out the learning curve by eliminating keyboard/mouse intermediaries and allowing a natural flow of information to develop between a user and a computer.

When a user wants to access information or perform a function on a computer with a touchscreen installed, a touch quickly and accurately does the job that once required complicated keyboard interactions or precise mouse movements.

A frustrating experience with a computer during a transaction can create dissatisfaction for your customer. Touchscreens help eliminate unpleasant transactions by creating a natural flow of information that enhances your product or service. Touchscreens speed up user/computer interactions. People get what they want faster and are more satisfied with the process.

IntelliTouch Touchscreens

IntelliTouch uses Elo's patented surface wave technology to provide superior image clarity, stable drift-free operation, and a durable surface that is unaffected by scratches. With IntelliTouch you get fast, accurate response to soft stylus stimulation (finger, gloved hand, pencil eraser) that is also sensitive to pressure.



For example, a customer in a department store could scroll through a product catalog by increasing or decreasing pressure on an icon. IntelliTouch's pressure sensitivity increases the intuitive nature of a user/touchscreen interaction by allowing for increased selectivity.

An IntelliTouch touchscreen is a great choice for point-of-information or public access applications such as the following:

- ☐ Point-of-information kiosks
- ☐ Vending
- ☐ Electronic catalogs
- ☐ In-store locators
- ☐ Gaming and lottery
- ☐ Banking/financial transactions
- ☐ Ticket sales
- ☐ Interactive education
- ☐ Multimedia demonstrations

AccuTouch Touchscreens

Elo's patented five-wire resistive technology makes AccuTouch products unmatched for durability and accuracy. Touch an AccuTouch screen with a finger, gloved hand, stylus, fingernail, or even a credit card, and you'll receive a fast, accurate response—every time. The surface of an AccuTouch touchscreen is scratch-resistant and can withstand spills and other types of wear and tear that often occur in heavy-usage environments.

An AccuTouch touchscreen is best used for clerk-or employee-activated applications such as:

- ☐ Industrial process control
- ☐ Medical equipment
- ☐ Point-of-sale terminals
- ☐ Transportation



Appendix B

Touchmonitor Safety

This manual contains information that is important for the proper setup and maintenance of your touchmonitor. Before setting up and powering on your new touchmonitor, read through this manual, especially Chapter 2, Installation, and Chapter 3, Operation.

1. To reduce the risk of electric shock, follow all safety notices and never open the touchmonitor case.
2. Your new touchmonitor is equipped with a three-wire, grounding power cord. The power cord plug will only fit into a three-pronged safety ground outlet. Do not attempt to fit the plug into an outlet that has not been configured for this purpose. Do not use a damaged power cord. Use only the power cord that comes with your Elo TouchSystems touchmonitor. Use of an unauthorized power cord may invalidate your warranty.
3. The slots located on the sides and top of the touchmonitor case are for ventilation. Do not block or insert anything to the ventilation slots.
4. It is important that your touchmonitor remains dry. Do not pour liquid into or onto your touchmonitor. If your touchmonitor becomes wet do not attempt to repair it yourself.



Care and Handling of Your Touchmonitor

The following tips will help keep your Elo Entuitive touchmonitor functioning at the optimal level.



Protect your touchmonitor from extremely low or high temperatures.



Keep your touchmonitor dry. Do not wash it with a wet cloth or pour fluid into it.



Check your touchmonitor for condensation. If condensation develops, do not power your touchmonitor on until the condensation evaporates.



Protect your touchmonitor from being bumped or dropped.



Keep your touchmonitor away from dust, sand, and dirt.



Keep your touchmonitor away from humid environments.



Cleaning Your Touchmonitor

Before you clean your touchmonitor (and PC), prevent damage by powering off the entire computer system and disconnecting the touchmonitor from the AC outlet. After you finish cleaning, make sure the touchmonitor is completely dry before you reconnect the cables and power it on. Do not apply liquid or aerosol spray cleaners directly to the screen or case. Do not use any type of abrasive pad, alkaline cleaner, scouring powder, or solvent (such as alcohol or benzine) to clean your touchmonitor. Avoid getting liquids inside your touchmonitor. If liquid does get inside, have a qualified service technician check it before you power it on again.

Screen

Remove dust and dirt by wiping the touchscreen with a soft, clean, lint-free cloth. Moisten a soft cloth with an ammonia-based glass cleaner and use it to remove fingerprints and smudges.

Case

Clean the touchmonitor case with a soft cloth slightly moistened with a mild detergent solution. Rinse the cloth with clear water, wring it dry, and wipe the cabinet to remove any detergent residue.



Appendix B : Touchmonitor Safety



Regulatory Information

Electrical Safety Information

A) Compliance is required with respect to the voltage, frequency, and current requirements indicated on the manufacturer's label. Connection to a different power source than those specified herein will likely result in improper operation or damage to the equipment, or may pose a fire hazard if the limitations are exceeded.

B) There are no operator serviceable parts inside this equipment. This equipment generates hazardous voltages that constitute a safety hazard. Service should be provided only by a qualified service technician.

C) This equipment is provided with a detachable power cord that has an integral safety ground wire and three-prong connector intended for connection to a grounded safety outlet.

1) Do not substitute the cord with any cord other than the provided approved type. Under no circumstances use an adapter plug to connect to a two-wire outlet, as this will defeat the continuity of the grounding wire.

2) This equipment requires the use of the ground wire as a part of its safety certification. Modification or misuse can provide a shock hazard that can result in serious injury or death.

3) If there are any questions about the installation prior to connecting the equipment to mains power, contact a qualified electrician or the manufacturer.

Emissions and Immunity Information

A) Notice to Users in the United States: This equipment has been tested and found to comply with Part 15 of FCC Rules for digital devices. Models with internal touch controllers meet Class B limits. Models without internal touch controllers meet Class A limits. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

B) Notice to Users in Canada: This equipment has been tested and found to comply with radio noise emission limits as established by the Radio Interference Regulations of Industrie Canada for digital devices. Models with internal touch controllers meet Class B limits. Models without internal touch controllers meet Class A limits.

C) Notice to Users in the European Union: This equipment has been tested and found to comply with the requirements of CE marking for Information Technology Equipment as required by: Low Voltage Directive 73/23/ECC and standard EN 60950; EMC Directive 89/336/ECC, and per standard EN 55022, models with internal touch controllers meet Class B limits, and models without internal touch controllers meet Class A limits.

D) General Information to All Users: This equipment generates, uses, and can radiate radio frequency energy. If not installed and used according to this manual, the equipment may cause interference with radio and television communications. There is, however, no guarantee that interference will not occur in any particular installation due to site-specific factors.

1) In order to meet emission and immunity requirements, the user must observe the following:

a) Use only the provided I/O cables to connect this digital device with any computer.

- b) To ensure compliance, use only the provided manufacturer-approved line cord.
 - c) The user is cautioned that changes or modifications to the equipment not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
- 2) If this equipment appears to cause interference with radio or television reception, or any other device:
- a) Verify as an emission source by turning the equipment off and on.
 - b) If you determine that this equipment is causing the interference, try to correct the interference by using one or more of the following measures:
 - i) Move the digital device away from the affected receiver.
 - ii) Reposition (turn) the digital device with respect to the affected receiver.
 - iii) Reorient the affected receiver's antenna.
 - iv) Plug the digital device into a different AC outlet so the digital device and the receiver are on different branch circuits.
 - v) Disconnect and remove any I/O cables that the digital device does not use. (Unterminated I/O cables are a potential source of high RF emission levels.)
 - vi) Plug the digital device into only a grounded outlet receptacle. Do not use AC adapter plugs. (Removing or cutting the line cord ground may increase RF emission levels and may also present a lethal shock hazard to the user.)

If you need additional help, consult your dealer, manufacturer, or an experienced radio or television technician





Appendix C

Technical Specifications

Note: All specifications are subject to change.



Touchmonitor Specifications

17" Monitor

15" Monitor

Picture Tube	17" (16" diagonal viewable image) flat square tube (FST) with enhanced contrast, dark-tinted CRT, 0.28-mm dot pitch, invar shadow mask, advanced anti-reflection, and anti-glare.	15" (13.8" diagonal viewable image) flat square tube (FST) with enhanced contrast, dark-tinted CRT, 0.28-mm dot pitch, invar shadow mask, advanced anti-reflection, and anti-glare.
Recommended Resolution	1280 x 1024 @ 60Hz, 1024 x 768 @ 85Hz	1280 x 1024 @ 60Hz, 1024 x 768 @ 85Hz
Deflection Frequency	Horizontal: 30-70 kHz Vertical: 50-160 Hz	Horizontal: 30-69 kHz Vertical: 50-125 Hz
Maximum Video Input Bandwidth	108 MHz	108 MHz
Display Area*	Factory Setting: approx. 300 mm x 225 mm Active Area: approx. 325 mm x 242 mm	Factory Setting: approx. 260 mm x 195 mm Active Area: approx. 278 mm x 209 mm
Input Signal	Video: Analog 0.7 V Sync: Digital 3.3 V	Video: Analog 0.7 V Sync: Digital 3.3 V
Input Connector	15-pin D-sub type	15-pin D-sub type
Display Colors*	Analog input; unlimited colors	Analog input; unlimited colors
Power Source	90-264 Vac (full range)	90-264 Vac (full range)
Power Consumption	90 watts (maximum)	110 watts (maximum)
Power Management	Compliant with EPA/Energy Star, NUTEK/TCO VESA DPMS signaling method.	Compliant with EPA/Energy Star, VESA DPMS signaling method.
Plug and Play Compatibility	Compliant with VESA DDC 1 and 2B standards.	Compliant with VESA DDC 1 and 2B standards.
CRT Life	Average operational CRT life is 12,000 hours to half brightness.	Average operational CRT life is 12,000 hours to half brightness.

*Dependent on video controller/card used.



	17" Monitor	15" Monitor
USB hub (optional)	Not available for 17-inch monitor.	Locally powered hub with two of four downstream ports and one upstream port. (+5 V, 1 A max.; 0.5 A each port)
Front Panel Controls	– (Decrease), Function, + (Increase), Contrast, Brightness, and POWER	– (Decrease), Function, + (Increase), Contrast, Brightness, and POWER
On-Screen Adjustments	H-Size, H-Position, V-Size, V-Position, Pincushion, Trapezoid, Tilt, Color Adjustment, Degauss, Language, Management (Power Saver, Display Mode), and Factory Reset	H-Size, H-Position, V-Size, V-Position, Pincushion, Trapezoid, Tilt, Color Adjustment, Language, Management (Power Saver, Display Mode), and Factory Reset
Safety Regulations	UL, TÜV, cUL, DHHS	UL, TÜV, cUL, DHHS
EMI	FCC Class B, CE (FCC Class A for models without touch controllers)	FCC Class B, CE (FCC Class A for models without touch controllers)
Ergonomics	ISO 9241 Part 3 Monitors with anti-glare screens: ISO 9241 Part 7 class 1. Monitors with clear screens: ISO 9241 Part 7 class 3.	ISO 9241 Part 3 Monitors with anti-glare screens: ISO 9241 Part 7 class 1. Monitors with clear screens: ISO 9241 Part 7 class 3.
Monitor Dimensions	412mm (W) x 418mm (H) x 420mm (D); see page 40.	381 mm (W) x 380.6mm (H) x 427.5mm (D); see page 41.
Net Weight (without touchscreen)	15.5 kg	13 kg
Ambient Temperature	Operating: 10°C - 40°C Storage: -20°C - 65°C	Operating: 10°C - 40°C Storage: -20°C - 65°C
Humidity	Operating: 20%-95% Storage: 10%-95%	Operating: 20%-95% Storage: 10%-95%



IntelliTouch Touchmonitor Specifications

Mechanical	
Positional Accuracy	Standard deviation of error is less than 0.080 in. (2.03 mm). Equates to less than $\pm 1\%$.
Touchpoint Density	More than 100,000 touchpoints/in ² (15,500 touchpoints/cm ²).
Touch Activation Force	Typically less than 3 ounces (85 grams).
Surface Durability	Surface durability is that of glass, Mohs' hardness rating of 7.
Expected Life Performance	No known wear-out mechanism, as there are no layers, coatings, or moving parts. IntelliTouch technology has been operationally tested to more than 50 million touches in one location without failure, using a stylus similar to a finger.
Sealing	Unit is sealed to protect against splashed liquids, dirt, and dust. See <i>IntelliTouch Ultra Product Manual</i> for details.
Optical	
Light Transmission (per ASTM D1003)	90%
Visual Resolution	All measurements made using USAF 1951 Resolution Chart, under 30X magnification, with test unit located approximately 1.5 in (38 mm) from surface of resolution chart. Clear surface: Excellent, with no noticeable degradation. Antiglare surface: 6:1 minimum.
Gloss (per ASTM D2457 using a 60-degree gloss meter)	Clear surface: N/A Antiglare surface: Curved: 60 ± 20 gloss units or 75 ± 15 gloss units.
Environmental	
Chemical Resistance	The active area of the touchscreen is resistant to all chemicals that do not affect glass, such as: Acetone Toluene Methyl ethyl ketone Isopropyl alcohol Methyl alcohol Ethyl acetate Ammonia-based glass cleaners Gasoline Kerosene Vinegar
Electrostatic Protection (per EN 61 000-4-2, 1995)	Meets Level 4 (15 kV air/8 kV contact discharges).



AccuTouch Touchmonitor Specifications

Mechanical	
Construction	Top: Polyester with outside hard-surface coating with clear or antiglare finish. Inside: Transparent conductive coating. Bottom: Glass substrate with uniform resistive coating. Top and bottom layers separated by Elo-patented separator dots.
Positional Accuracy	Standard deviation of error is less than 0.080 in. (2.03 mm). This equates to less than $\pm 1\%$.
Touchpoint Density	More than 100,000 touchpoints/in ² (15,500 touchpoints/cm ²).
Touch Activation Force	Typically less than 4 ounces (113 grams).
Surface Durability	Meets Taber Abrasion Test (ASTM D1044), CS-10F wheel, 500 g. Meets pencil hardness 3H.
Expected Life Performance	AccuTouch technology has been operationally tested to greater than 35 million touches in one location without failure, using a stylus similar to a finger.
Optical	
Light Transmission (per ASTM D1003)	Typically 75% at 550-nm wavelength (visible light spectrum).
Visual Resolution	All measurements made using USAF 1951 Resolution Chart, under 30 X magnification, with test unit located approximately 1.5 in. (38 mm) from surface of resolution chart. Clear surface: N/A Antiglare surface: 6:1 minimum.
Haze (per ASTM D1003)	Clear surface: Less than 1.5%. Antiglare surface: Less than 15%.
Gloss (per ASTM D2457)	Clear surface: N/A Antiglare surface: 90 \pm 20 gloss units tested on a hard-coated front surface.



Appendix C : Technical Specifications

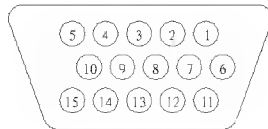
Environmental

Chemical Resistance

The active area of the touchscreen is resistant to the following chemicals when exposed for a period of one hour at a temperature of 21°C:

- Acetone
- Methylene chloride
- Methyl ethyl ketone
- Isopropyl alcohol
- Hexane
- Turpentine
- Mineral spirits
- Unleaded gasoline
- Diesel fuel
- Motor oil
- Transmission fluid
- Antifreeze

Signal PINOUT for 15" and 17" Monitors

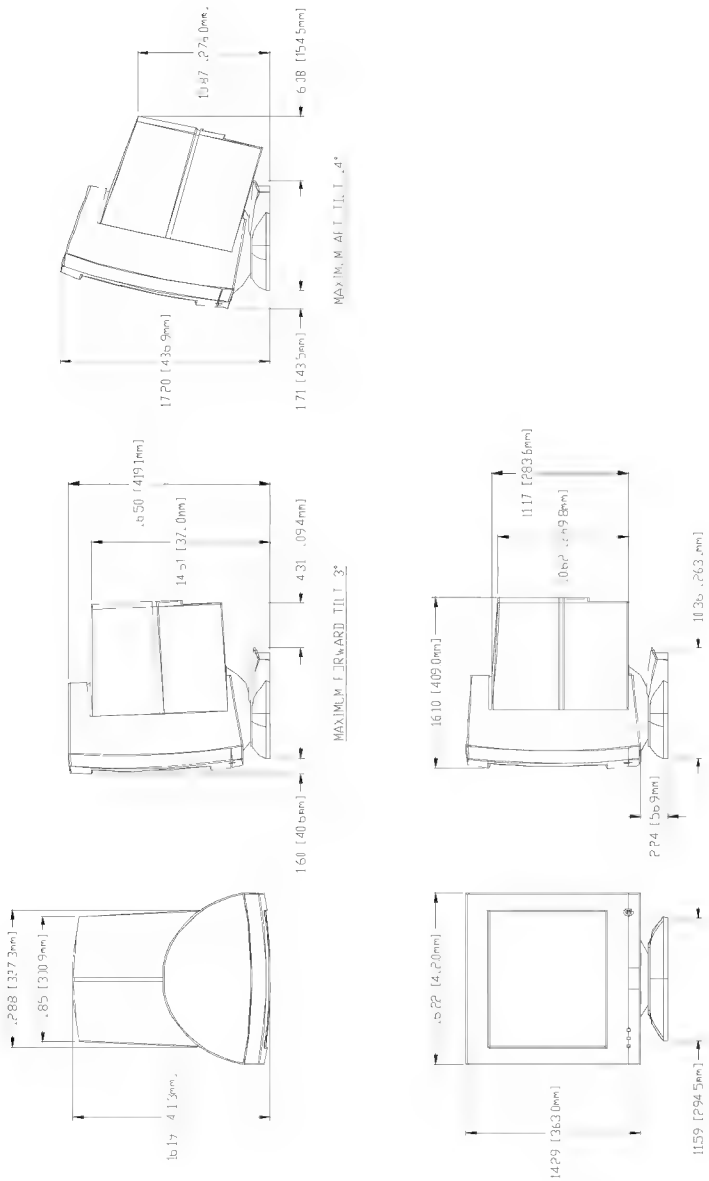


PIN Number	Signal
1	Red video
2	Green video
3	Blue video
4	Ground
5	*VGA card detection (GND)
6	Red return
7	Green return
8	Blue return
9	+5 V
10	Sync return
11	Ground
12	SDA (Serial Data)
13	Horizontal Sync
14	Vertical Sync
15	SCL (Serial Clock)

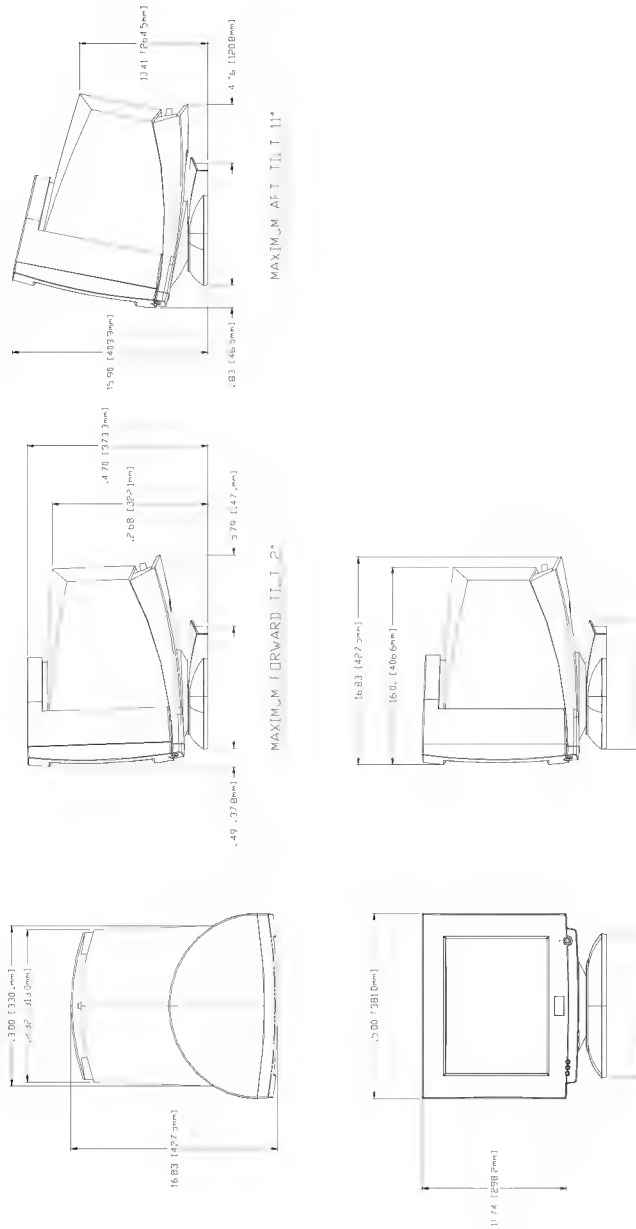
*Pin 5, self-test pin shall be grounded when signal connector is plugged in.



17" CRT Touchmonitor Dimensions



15" CRT Touchmonitor Dimensions





Appendix C : Technical Specifications



Warranty

Except as otherwise stated herein or in an order acknowledgment delivered to Buyer, Seller warrants to Buyer that the Product shall be free of defects in materials and workmanship. See relevant specification sheet for touchmonitors.

Seller makes no warranty regarding the model life of monitors. Seller's suppliers may at any time and from time to time make changes in the monitors delivered as Products or components.

Buyer shall notify Seller in writing promptly (and in no case later than thirty [30] days after discovery) of the failure of any Product to conform to the warranty set forth above; shall describe in commercially reasonable detail in such notice the symptoms associated with such failure; and shall provide to Seller the opportunity to inspect such Products as installed, if possible. The notice must be received by Seller during the Warranty Period for such product, unless otherwise directed in writing by the Seller. Within thirty (30) days after submitting such notice, Buyer shall package the allegedly defective Product in its original shipping carton(s) or a functional equivalent and shall ship to Seller at Buyer's expense and risk.

Within a reasonable time after receipt of the allegedly defective Product and verification by Seller that the Product fails to meet the warranty set forth above, Seller shall correct such failure by, at Seller's options, either (i) modifying or repairing the Product or (ii) replacing the Product. Such modification, repair, or replacement and the return shipment of the Product with minimum insurance to Buyer shall be at Seller's expense. Buyer shall bear the risk of loss or damage in transit, and may insure the Product. Buyer shall reimburse Seller for transportation cost incurred for Product returned but not found by Seller to be defective. Modification or repair of Products may, at Seller's option, take place either at Seller's facilities or at Buyer's premises. If Seller is unable to modify, repair, or replace a Product to conform to the warranty set forth above, then Seller shall, at Seller's option, either refund to Buyer or credit to Buyer's account the purchase price of the Product less depreciation calculated on a straight-line basis over Seller's stated Warranty Period.

THESE REMEDIES SHALL BE THE BUYER'S EXCLUSIVE REMEDIES FOR BREACH OF WARRANTY. EXCEPT FOR THE EXPRESS WARRANTY SET FORTH ABOVE, SELLER GRANTS NO OTHER WARRANTIES, EXPRESS OR IMPLIED BY STATUTE OR OTHERWISE, REGARDING THE PRODUCTS, THEIR FITNESS FOR ANY PURPOSE, THEIR QUALITY, THEIR MERCHANTABILITY, THEIR NONINFRINGEMENT, OR OTHERWISE. NO EMPLOYEE OF SELLER OR ANY OTHER PARTY IS AUTHORIZED TO MAKE ANY WARRANTY FOR THE GOODS



OTHER THAN THE WARRANTY SET FORTH HEREIN, SELLER'S LIABILITY UNDER THE WARRANTY SHALL BE LIMITED TO A REFUND OF THE PURCHASE PRICE OF THE PRODUCT. IN NO EVENT SHALL SELLER BE LIABLE FOR THE COST OF PROCUREMENT OR INSTALLATION OF SUBSTITUTE GOODS BY BUYER OR FOR ANY SPECIAL, CONSEQUENTIAL, INDIRECT, OR INCIDENTAL DAMAGES.

Buyer assumes the risk and agrees to indemnify Seller against and hold Seller harmless from all liability relating to (i) assessing the suitability for Buyer's intended use of the Products and of any system design or drawing and (ii) determining the compliance of Buyer's use of the Products with applicable laws, regulations, codes, and standards. Buyer retains and accepts full responsibility for all warranty and other claims relating to or arising from Buyer's products, which include or incorporate Products or components manufactured or supplied by Seller. Buyer is solely responsible for any and all representations and warranties regarding the Products made or authorized by Buyer. Buyer will indemnify Seller and hold Seller harmless from any liability, claims, loss, cost, or expenses (including reasonable attorney's fees) attributable to Buyer's products or representations or warranties concerning same.

Elo TouchSystems (800) 356-8682 or (650) 361-2507 · Fax (650) 361-5579 · www.elotouch.com

Users should independently evaluate the suitability of the product for their application.

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